and changes in the timing of ossification. We show that in mutants many endochondral bones have accelerated ossification while some intramembranous bones have delays in ossification. Furthermore, we find strong expression of *trpm7* in the larval kidney, suggesting that mutant defects in growth and ossification timing may reflect physiological consequences of altered cation homeostasis. Consistent with renal dysfunction and altered cation homeostasis, we identified mineralized deposits within the larval kidney. Currently, we are evaluating overall renal function and investigating possible mediators of changes in bone development in mutants.

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Vernalization: Remembering winter with an environmentally induced epigenetic switch

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Certain plants, such as biennials or winter annuals, require relatively long periods of cold exposure during winter to initiate flowering the following spring. Cold exposure renders the meristem of such cold-requiring species competent to flower, and this acquisition of competence is known as vernalization. A vernalization requirement ensures that flowering does not occur prematurely before the onset of winter. A similar cold response is bud dormancy; in many species that grow in temperate climates, bud dormancy is not broken until a plant has counted a sufficient number of days of cold to ensure that any subsequent warn weather actually indicates that spring has arrived. Our studies of vernalization in *Arabidopsis* have revealed that meristem competence is a function of the expression level of certain MADS-box genes such as FLOWERING LOCUS C (FLC) that act as repressors of flowering. Exposure to prolonged cold causes epigenetic silencing of these MADS box genes, thus rendering the shoot apical meristem competent to flower. During cold exposure, specific components of chromatin-remodeling complexes are induced, and these chromatin-remodeling complexes catalyze covalent modification of histones of the chromatin of the flowering repressors resulting in silencing of gene expression.

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